

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re application of	: Attorney Docket No.
	: LE MARCHAND
Applicant: Alain LE MARCHAND	:
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Application No. Unknown (Claiming priority	: GAU: Unknown
Of French Patent Application No. 03.00313	:
Filed: January 13, 2003	:
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Filed: Herewith	: Examiner: Unknown
	:
For: "METHOD AND DEVICE FOR	:
OBTAINING A LOW-NOISE OPTICAL	:
SIGNAL"	: January 13, 2004
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MAIL STOP PATENT APPLICATION  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

SIR:

Prior to calculation of the filing fee, please amend the above application as follows:

IN THE CLAIMS:

*Please AMEND the claims to read as set forth in the following listing of claims.*

1. (original) A method for obtaining a low-noise optical signal wherein:
  - a luminous beam is injected through an aperture (1),
  - the intensity of the beam is detected after going through the aperture(1), and
  - a basic optical signal is generated (21), representative of said intensity measured as a function of time,

characterised in that:

- the luminous beam is also injected through another aperture(2),
- another intensity of the beam is detected after going through the other aperture (2),
- a corrective optical signal (22) is generated, representative of said other intensity measured as a function of time, and
- both optical signals obtained (21, 22) are subtracted, so that a resulting optical signal (23) is obtained, forming said low-noise optical signal.

2. (original) A method according to claim 1, characterised in that said apertures (1, 2) are two slits of a spectroscopic device, said optical signals (21, 22) being expressible relative to the wavelength.

3. (currently amended) A method according to ~~one of the claims 1 or 2~~ claim 1, characterised in that the basic optical signal (21) comprising peaks of intensity (15) having a full bandwidth (L) at half maximum, said apertures (1, 2) are spaced apart so that they are separated by a gap (D) corresponding to 2 to 4 times said bandwidth (L), and preferably approximately 3 times.

4. (original) A method according to claim 3, characterised in that one of said peaks of intensity (15) of the basic optical signal (21) becomes interesting, and said optical signals (21, 22) are generated over an interval (I) having a width slightly greater than the gap (D) between said peak of intensity (15) and the corresponding peak of intensity of the corrective optical signal (22), said value being preferred comprised between 1.2 and 1.5 times said gap (D), and covering approximately said peaks of intensity (15, 16).

5. (currently amended) A method according to ~~any of the previous claims~~ claim 1, characterised in that the resulting optical signal (23) is time-integrated.

6. (currently amended) A method according to ~~any of the claims 1 to 5~~ claim 1, characterised in that the intensities of the beam after going through both apertures (1, 2) are detected simultaneously.

7. (currently amended) A method according to ~~any of the claims 1 to 5~~ claim 1, characterised in that the intensities of the beam are detected alternately after going through both apertures (1, 2) and said basic optical (21) and corrective (22) signals are reconstructed, preferably by integration.

8. (original) A device for obtaining a low-noise optical signal, comprising:

- an aperture (1) intended to be traversed by a luminous beam,
- means for detecting (3, 4, 6, 7) the intensity of said beam, arranged downstream of said aperture (1) and capable of generating a basic optical signal (21) representative of said intensity measured as a function of time, and
- a processing unit (5), capable of processing said basic optical signal (21),

characterised in that it includes another aperture (2) intended to be traversed by said luminous beam, said detection means (3, 4, 6, 7) being provided to also detect another intensity of the beam after going through the other aperture (2) and to generate a corrective optical signal (22) representative of said other intensity measured as a function of time, and said processing unit (5) being laid-out to subtract both optical signals (21, 22) obtained, in order to generate thus a resulting optical signal (23) forming said low-noise optical signal.

9. (original) A device according to claim 8, characterised in that said apertures (1, 2) are the slits of a spectroscopic device.

10. (currently amended) A device according to ~~one of the claims 8 or 9~~ claim 8, characterised in that said detection means comprise two sensors (3, 4) intended to detect respectively and simultaneously said beam after going through both apertures (1, 2).

11. (currently amended) A device according to ~~one of the claims 8 or 9~~  
claim 8, characterised in that said detection means comprise a sensor (7)  
and a chopper (6) interposed between the sensor (7) and the apertures (1,  
2), the chopper (6) being intended to let through alternately towards the  
sensor (7) the beam after going through both aperture (1, 2).

12. (original) A device according to claim 11, characterised in that it  
includes an integrator, laid out to reconstruct said basic optical (21) and  
corrective (22) signals.